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# Avalanche Notes

U.S. Forest Service  
Westwide Avalanche Network

MARCH 95

## Weather

March brought two big storms to California and one to Colorado, which produced record March snowfalls at several sites in both states. Record snows also fell in Idaho and Montana. The storm track was actually broad and vigorous enough to bring above-normal snowfall to most sites from Alyeska to Taos. Alyeska, AK, recorded 63" of snow on the 16th-18th and finished the month with 105% of normal snowfall -- its fifth straight month above normal. Additionally, on the 17th, Alyeska recorded 5.40" water content, which is a new 24-hour precipitation record. Taos, NM, got 42" on the 1st-7th and finished with 110%.

In the Cascades of Washington, Crystal Mtn. and Mt. Rainier-Paradise received light snows almost daily from the 4th-25th; both sites reported 102% of their monthly norms. Stevens Pass reported 80% of normal, while Mt. Hood Meadows, OR, got 76%.

The Sierra of California was where the action was. Three storms struck the Tahoe area: a smallish one on the 2nd-6th (28-32"), a big one on the 9th-14th (47-80"), and a huge one on the 21st-24th (90-106"). The storm of the 9th-14th dropped 47" at Alpine Meadows, 71" at Squaw Valley, 79" at Sugar Bowl, and 80" at Kirkwood Meadows. These snow amounts were eclipsed 10 days later with the storm of the 21st-24th: 90" at Sugar Bowl, 100" at both Alpine Meadows and Squaw Valley, and 106" at Kirkwood Meadows. At Alpine Meadows, this was the largest 2-day, 3-day, and 4-day storm of record. On the 24th, Squaw Valley reported a snow depth of 320" and Sugar Bowl, 330". (These are probably record depths, but incomplete records exist in the Westwide database for these sites. March snowfalls of 209" at Squaw Valley and 211" at Sugar Bowl are also likely records.)

Further south in the Mammoth Lakes area, the heaviest snows fell on the 10th-11th (53" at Mammoth Mtn. and 62" at June Mtn.) and on the 21st-24th (58" at Mammoth and another 62" at June). For the month, Alpine Meadows recorded 275% of normal snowfall, for its second snowiest March (or any other month); and Mammoth Mtn. recorded 212%, for its third snowiest March.

In the Intermountain area, Sun Valley, ID, recorded 270% of normal snowfall, a new March record. On the 10th-11th, Sun Valley got 29" of snow with 4.75" water content. Bridger Bowl, MT, set two records: the snowiest March with 160% of normal, and the snowiest 24 hours when 43" fell on the 25th. Elsewhere in Montana, Big Sky got 120% of normal, and Big Mtn., 85%. In Utah, Alta recorded 116% of normal snows, and Snowbird, 105%. Jackson Hole, WY, reported 135% of normal snow for March.

In Colorado, a big storm hit the southern and central mountains on the 1st-7th. Wolf Creek accumulated 75" during this storm; Telluride and Gothic, 70"; and Aspen Mtn., 53". Aspen Mtn. received 208% of normal March snows, Aspen Highlands, 191%, and Telluride, 193%, and all set new March records. Gothic received 184% of normal for its second snowiest March of record. Other sites, too, were well above normal: Crested Butte, 170%; Wolf Creek, 150%; Beaver Creek, Monarch, and Purgatory, all 140-145%; Berthoud Pass, 120%; and Copper Mtn., 115%. Winter Park was exactly 100% of normal, while Vail and Arapahoe Basin got 98%. Only Steamboat and Breckenridge, both with 83%, came up short.

#### Avalanche

Active and widespread avalanche cycles followed the storm cycles in March. In the Sierra, Squaw Valley, Alpine Meadows, Sugar Bowl, Kirkwood Meadows, and Mammoth Mtn. all experienced avalanche cycles during the big storms. In Montana, Bridger Bowl saw extensive avalanching on the 24th-28th. In Utah's Wasatch, Alta had its busiest month of the winter. In Colorado, most of the avalanches ran during the storm in the first week of March. At Taos, all the releases came on the 2nd-6th.

Fortuitously absent in these avalanche cycles was any fatal accidents. In March, 18 accidents were reported. These resulted in 18 people caught, 2 buried and 3 injured. In addition, one vehicle, five houses, and three miscellaneous structures were hit, with an estimated \$25,000 total damage. Here's a rundown on the significant incidents:

March 6, Telluride and Ophir, CO: An avalanche damaged a powerline and the water system at a mine just east of Telluride. Another avalanche damaged a powerline at Ophir, south of Telluride.

March 12, Squaw Valley, CA: Two snowboarders were totally buried when they were struck by an avalanche triggered above them. Other skiers, boarders, and people riding the chairlift witnessed the slide, and rescuers uncovered both victims within 7 minutes. One suffered a slight injury.

March 13, Alpine Meadows, CA: A size-5 wet-slab avalanche came down when shot with an ava launcher along the ski-area access road. It buried the road 20 feet deep and hit a house. Minor structural damage resulted to the two-story house.

March 18-19, Eagle River, AK: On the 18th, an avalanche hit four houses without causing damage in this development north of Anchorage. On the 19th, five back-country snowboarders were caught when they triggered an avalanche.

Through March, 119 avalanche accidents have been reported, resulting in 149 people caught, 51 partly buried, 29 buried, 24 injured, and 17 killed. Also, 51 vehicles (including snowmobiles), 12 buildings, and a train have been damaged, with a total estimated loss exceeding \$700,000.

U.S. FOREST SERVICE  
WESTWIDE WEATHER AND AVALANCHE NETWORK  
FORT COLLINS, COLORADO

MARCH 1995  
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL			WATER EQUIVALENT						SNOW DEPTH				TEMPERATURE				WIND SPEED AND DIRECTION								
				MAX																						
	TOTAL	IN	D	TOTAL	IN	D	NUMBER	D	A	MEAN	MEAN	Avg	6 HOUR	PERIODS	FASTEST	D	MO.	GE	GE	HOUR	A					
	SNOW-	24	A	FALL	AVG	HR.	T	WATER	HR.	T	G E	G E	G E	MAX	T	MIN	AVG	IN.	E	IN.	IN.	DEGREES F	15	20	MPH	DIR.
IN.			IN.	IN.	IN.	E	IN.	IN.	E	.1	.2	.5	1.0	IN.	E	IN.	IN.									
<b>CENTRAL AND SOUTHERN ROCKY MOUNTAINS</b>																										
ARAPAHOE BASIN, COLO	61.0	.09	8	20	5.24	.70	20	15	10	3	0	72	3	61	66	30.5	8.1	19.3	15.0	62	23	37	180	23		
ASPEN HIGHLANDS, CO	102.9	.09	25	3	8.96	2.20	3	16	15	6	2	102	6	67	85	38.4	16.7	27.5	11.3	27	15	38	230	11		
ASPEN MOUNTAIN, COLO	105.9	.08	21	3	8.86	1.70	3	17	14	6	3	97	6	67	84	35.7	15.6	25.7	7.6	9	1	24	160	23		
BEAR LAKE, RMNP, CO	46.0	.07	9	6	3.29	.70	6	14	8	1	0	56	6	41	46	30.3	19.8	25.0	--	--	--	--	--	--		
BEAVER CREEK, COLO	97.4	.07	15	26	7.15	1.00	6	19	16	5	1	98	26	75	83	27.1	14.1	20.6	6.8	1	0	17	260	5		
BERTHOUD PASS, COLO	70.6	.08	11	7	5.83	1.00	7	12	11	6	1	--	--	--	--	--	--	--	--	14.6M	50M	23M	38	190	23	
BRECKENRIDGE, COLO	46.5	.07	6	20	3.25	.60	20	13	8	1	0	71	7	59	63	24.0	9.7	16.9	13.1M	43M	16M	--	--	--		
COPPER MTN., COLO	60.5	.06	7	6	3.51	.60	6	14	7	1	0	59	6	48	53	35.7	12.6M	24.1M	18.1	79	55	47	250	21		
CRESTED BUTTE, COLO	70.0	.08	18	6	5.65	1.80	6	14	8	3	1	87	6	59	72	30.3	15.7	23.0	9.8M	18M	5M	--	--	--		
GOTHIC, COLO	117.5	.08	18	3	9.04	1.50	6	16	13	8	2	106	6	74	86	33.0	14.0	23.5	--	--	--	--	--	--		
KEYSTONE, COLO	61.0	--	8	30	--	--	--	--	--	--	--	66	30	54	59	33.4	12.2	22.8	10.3	17	5	--	--	--		
MONARCH, COLO	80.1	.08	13	26	6.41	1.30	6	15	14	3	1	83	30	57	69	32.4	13.5	22.9	--	--	--	--	--	--		
POWDERHORN, COLO	56.8	--	12	6	--	--	--	--	--	--	--	72	6	55	64	47.4M	16.3M	31.8M	5.6M	10M	3M	--	--	--		
PURGATORY, COLO	79.7	.08	18	6	6.27	1.30	6	14	11	4	1	98	6	69	80	38.2M	21.4M	29.8M	--	--	--	--	--	--		
RED MTN PASS U.S.-550	93.5	.09	18	6	8.69	1.51	6	16	12	7	3	91	6	72	79	29.4M	11.4M	20.4M	--	--	--	--	--	--		
STEAMBOAT, COLORADO	45.5	--	10	26	--	--	--	--	--	--	--	64	26	53	57	40.3	20.4	30.3	--	--	--	--	--	--		
TAOS, NEW MEXICO	58.5	.11	11	2	6.27	1.50	6	13	12	3	3	121	7	103	112	32.0	18.6	25.3	6.5M	11M	2M	--	--	--		
TELLURIDE, COLO	122.0	.07	20	6	8.25	1.45	6	15	11	7	2	93	6	69	82	31.9	14.4	23.2	9.8	25	15	36	230	24		
VAIL, COLO	73.3	.08	11	6	5.57	.97	6	17	11	4	0	85	30	69	74	32.0	14.7	23.4	8.2	8	2	29	200	23		
WINTER PARK S.A., CO	73.4	.07	10	3	5.09	.75	3	14	11	4	0	82	6	68	76	30.2	14.6	22.4	9.3	19	3	34	310	18		
WOLF CREEK, COLO	124.2	.11	23	6	13.82	2.25	6	19	15	10	5	160	29	112	146	32.4	12.9	22.6	15.4M	68M	23M	47	230	22		
<b>INTERMOUNTAIN</b>																										
ALTA, UTAH	117.0	.10	21	11	12.48	2.30	11					170	24	120	147	37.4	14.0	26.0	12.8							
BIG SKY, MONT	64.0	--	11	4	--	--	--	--	--	--	--	81	25	55	67	29.2	13.0	21.1	--	--	--	--	--	--		
BIG MOUNTAIN, MONT	43.5	--	8	9	--	--	--	--	--	--	--	113	24	93	103	29.2	15.8	22.5	--	--	--	--	--	--		
BRIDGER BOWL, MONT	95.0	.08	43	25	8.08	3.45	25	13	9	4	1	120	25	73	86	32.5	17.2	24.9	11.4	28	4	28	250	24		
JACKSON HOLE, WY	90.2																									
SCHWEITZER BASIN, ID	40.0	--	9	9	--	--	--	--	--	--	--	111	23	90	101	31.7	20.0	25.9	--	--	--	40	50	1		
SNOWBIRD, UTAH	102.0	.11	24	24	11.80																					
SUN VALLEY, IDAHO	90.0	.11	19	11	9.79	3.30	11	17	10	5	2	122	24	69	95	29.8	11.7	20.8	12.5	41	18	41	310	24		
<b>WEST COAST</b>																										
ALPENTAL, WASH	48.8	.10	10	9	9.51	2.32	9	17	15	6	1	104	9	87	95	42.7M	26.4M	34.5M	--	--	--	--	--	--		
ALPINE MEADOWS, CAL	180.5	.13	35	23	31.22	4.07	23	19	19	16	12	193	24	107	145	35.6	23.4	29.5	35.2	107	99	95	270	22		
ALYESKA, ALASKA	87.0	.10	36	17	9.28	5.10	17	11	7	5	1	170	17	130	144	27.9	12.7	20.3	4.8	0	0	20	350	9		
CRYSTAL MTN 2, WASH	76.5	.10	12	9	9.23	1.50	10	17	13	6	2	118	23	88	103	33.4	19.2	26.3	--	--	--	--	--	--		
CRYSTAL MTN 1, WASH	44.5	.07	8	13	8.16	1.48	9	16	13	5	2	89	25	71	77	42.6	23.6	33.1	16.5	69	48	60	210	10		
EAGLECREST, ALASKA	43.6	.08	6	11	4.03	.46	16	11	11	0	0	146	26	125	135	--	--	--	--	--	--	--	--	--		
HEAVENLY VALLEY, CAL	121.0	.17	24	11	20.20	4.80	23	10	10	10	7	138	25	72	102	33.8M	17.7M	25.8M	--	--	--	--	--	--		
JUNE MOUNTAIN, CALIF	145.0	--	37	10	--	--	--	--	--	--	--	173	23	98	138	40.7	16.3	28.5	--	--	--	--	--	--		
MAMMOTH MTN, CALIF	134.0	.16	37	10	21.81	5.75	10	12	12	9	7	188	23	93	144	33.4	17.2	25.3	--	--	--	--	--	--		
MT. HOOD MDWS, ORE.	54.6	.10	10	5	8.30	1.22	19	17	16	5	2	120	25	96	108	39.1	23.3	31.2	15.3	67	37	43	250	24		
MT. RAINIER PARADISE	102.6	.10	12	22	13.86	1.87	5	19	18	9	4	184	25	141	163	36.4	24.1	30.3	--	--	--	--	--	--		
SNOQUALMIE PASS I-90	35.2	.10	8	9	4.74	1.19	24	10	7	2	1	91	9	73	81	45.5	25.5	35.5	5.0M	0M	0M	--	--			
SQUAW VALLEY, CALIF	209.6	.16	34	23	35.27	7.12	11	19	18	16	12	320	24	184	248	32.0	20.9	26.5	34.1	105	99	87	240	9		
STEVENS PASS, WASH	49.8	.07	9	24	5.47	1.30	10	15	9	3	1	105	24	86	93	36.9	24.8	30.9	9.9M	15M	5M	--	--	--		
SUGAR BOWL, CALIF	211.0	--	44	11	--	--	--	--	--	--	--	330	24	186	254	34.0	21.7	27.8	24.0	95	76	60	220	3		

-- DATA INCOMPLETE OR MISSING      M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING

IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE  
WESTWIDE WEATHER AND AVALANCHE NETWORK  
FORT COLLINS, COLORADO

MARCH 1995  
AVALANCHE SUMMARY

AREA	TOTAL	TOTAL	DATES OF		NUMBER OF DAYS WITH	TYPE OF AVALANCHE						FRACTURE LINE HEIGHTS IN FEET	VERTICAL DESCENT IN FEET	AVALS ACROSS MAJOR ACCESS ROADS NO.	
	A V A L S	A V A L S			A V L MAX	A U F L S	N T I F C A R D	A T H S O W E S	L O O	SLABS					
	THIS MONTH	THIS WINTER	R S	A S	ONE DAY	A S F S L	A R L	A R F T	E S T	L D T	O W E S	G E 2 4 6	G E 200 500 1000		
	NO.	NO.	T T	T T	NO. E	-----	NUMBER	-----	NUMBER	-----	NUMBER	GE	GE	GE	MAX
						-----	NUMBER	-----	NUMBER	-----	NUMBER	FEET	FEET	FEET	NO.

CENTRAL AND SOUTHERN ROCKY MOUNTAINS

ARAPAHOE BASIN, COLO	4	91	3	29	2	29	3	0	4	0	2	2	0	0	4	1	0	800	0	
ASPEN HIGHLANDS, COL	28	121	3	16	9	16	5	0	20	8	0	19	1	8	10	1	0	6	3	1 1800
ASPEN MOUNTAIN, COLO	25	66	3	26	22	3	3	0	25	0	0	25	0	0	25	0	0	13	0	0 380
BERTHOUD PASS, COLO	15	108	1	29	5	29+	6	0	3	12	2	13	0	0	12	5	1	14	8	2 1400
BRECKENRIDGE, COLO	74	278	2	27	17	3	9	0	73	1	3	71	0	0	22	9	8	65	21	1 1000
CRESTED BUTTE, COLO	3	65	3	6	2	3	2	0	3	0	0	3	0	0	2	1	0	3	2	1 1500
GOTHIC, COLO	37	199	3	29	12	6	11	0	0	37	0	20	0	17	18	3	0	37	31	18 1900
LOVELAND PASS U.S. 6	20	286	4	23	4	7	8	0	13	7	2	17	0	1	13	1	0	13	4	0 840
MONARCH, COLORADO	4	46	4	31	3	4	2	1	4	0	0	4	0	0	1	0	0	4	1	0 600
TAOS, NEW MEXICO	49	98	2	6	29	2	3	1	41	8	0	49	0	0	43	6	4	44	6	1 1100
URAD MINE, COLO	4	43	6	7	2	7+	2	0	0	4	2	2	0	0	4	0	0	3	2	0 500
VAIL, COLO	1	14	9	9	1	9	1	0	1	0	1	0	0	0	1	0	0	0	0	0 175
WOLF CREEK, COLO	30	103	1	12	6	4+	9	0	30	0	1	29	0	0	17	2	0	7	0	0 320

INTERMOUNTAIN

ALTA, UTAH	468	1218	2	30	125	4	22	4	436	32	16	439	6	0	106	4	0	237	136	10 1100
BIG MOUNTAIN, MONT	3	37	7	24	2	7	2	1	3	0	0	3	0	0	0	0	0	2	1	0 500
BIG SKY, MONT	147	357	4	30	41	4	17	0	142	5	17	130	0	0	23	4	1	142	87	19 1400
BRIDGER BOWL, MONT	184	642	4	29	50	25	18	0	179	5	3	169	6	6	72	16	1	182	136	21 1600
JACKSON HOLE, WY	60	168																		
SNOWBIRD, UTAH	105	727																		
SUN VALLEY, IDAHO	7	35	10	23	4	11	3	0	5	2	1	3	0	3	6	1	0	2	0	0 300

WEST COAST

ALPENTAL, WASH	2	98	25	28	1	28+	2	0	2	0	0	1	0	1	1	0	0	2	1	0 600
ALPINE MEADOWS, CAL	506	1489	3	24	74	24	17	0	465	41	0	481	17	8	90	9	3	455	141	1 1100
ALYESKA, ALASKA	57	404	16	29	24	16	4	0	42	15	0	54	3	0	51	12	2	57	54	49 2100
CRYSTAL MTN, WASH	172	1028	8	21	72	9	8	0	164	8	0	152	6	14	4	0	0	161	79	2 1000
HEAVENLY VALLEY, CAL	69	143	3	25	12	21	10	0	63	6	0	68	1	0	2	0	0	68	27	0 900
JUNE MOUNTAIN, CALIF	19	69	3	23	7	10	4	0	19	0	0	19	0	0	7	2	0	17	3	2 1000
KIRKWOOD MDWS, CAL	125	431	3	25	34	11	12	0	117	8	11	111	0	3	64	23	5	95	33	9 1200
MAMMOTH MTN, CALIF	123	479	3	24	23	24+	12	0	123	0	4	118	0	1	23	4	0	87	23	9 2000
MT. HOOD MEADOWS	19	156	5	23	5	5	6	0	19	0	4	15	0	0	3	0	0	11	11	4 1200
SQUAW VALLEY, CALIF	365	1660	3	24	91	11	12	0	359	6	2	363	0	0	118	16	5	225	54	0 900
STEVENS PASS, WASH	30	1250	9	25	11	21	4	0	30	0	0	30	0	0	0	0	0	0	0	0
SUGAR BOWL, CALIF	84	250	3	24	25	21	8	0	82	2	1	80	1	0	33	3	0	67	16	0 800
WHITE PASS, WASH	1	41	20	20	1	20	1	1	1	0	0	0	0	1	0	0	0	0	0	185

-- = DATA INCOMPLETE OR MISSING

GE = GREATER THAN OR EQUAL TO

+ = ALSO OCCURRED ON OTHER DATES